Claims

[c1] A stator frame for an electric motor, said stator frame comprising:
a substantially cylindrical shaped body section having opposed ends, and a cooling passageway extending through at least a portion of said body section, said cooling passageway comprising a cooling conduit;
an inlet port and an outlet port in flow communication with said cooling passageway; and
at least one spacer bar comprising a notched side and at least one finger projecting outwardly from said notched side, said spacer bar configured to mechanically couple to said cooling conduit.

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[c2] A stator frame in accordance with Claim 1 wherein said body section comprises a wall comprising an outer surface and an inner surface, said cooling passageway at least partially within said wall between said inner surface and said outer surface.

[c3] A stator frame in accordance with Claim 1 wherein said cooling conduit comprises an inlet end positioned at said inlet port, an outlet end positioned at said outlet port, and an intermediate portion extending therebetween.

[c4] A stator frame in accordance with Claim 3 wherein said spacer bar notched side engages said cooling conduit intermediate portion such that said spacer bar finger secures said spacer bar to said cooling conduit intermediate portion.

[c5] A stator frame in accordance with Claim 4 wherein said cooling conduit intermediate portion arranged in a generally helical geometric configuration.

[c6] A stator frame in accordance with Claim 4 wherein said cooling conduit intermediate portion arranged in a generally serpentine geometric configuration.

[c7] A stator frame in accordance with Claim 4 wherein said cooling conduit intermediate portion arranged in a squirrel cage configuration.

[c8] An electric motor, comprising:

a stator frame comprising a substantially cylindrical shaped body section having opposed first and second ends, and a cooling passageway extending through at least a portion of said body section, said frame further comprising an inlet port and an outlet port in flow communication with said cooling passageway, said cooling passageway comprising a cooling conduit;

a first end shield secured to said first stator frame end;

a second end shield secured to said second stator frame end; and

at least one spacer bar mechanically coupled to said cooling conduit, said spacer bar comprising a notched side and at least one finger projecting outwardly from said notched side.

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[c9] An electric motor in accordance with Claim 8 wherein said stator frame body section comprises a wall comprising an outer surface and an inner surface, said cooling passageway at least partially within said wall between said inner surface and said outer surface.

[c10] An electric motor in accordance with Claim 8 wherein said cooling conduit comprises an inlet end positioned at said inlet port, an outlet end positioned at said outlet port, and an intermediate portion extending between said inlet and said outlet ends.

[c11] An electric motor in accordance with Claim 10 wherein said spacer bar notched side engages said cooling conduit such that said spacer bar finger mechanically couples said spacer bar to said cooling conduit.

[c12] An electric motor in accordance with Claim 10 wherein said cooling conduit intermediate portion is arranged in a generally helical geometric configuration.

[c13] An electric motor in accordance with Claim 10 wherein said cooling conduit intermediate portion is arranged in a generally serpentine geometric configuration.

[c14] An electric motor in accordance with Claim 10 wherein said cooling conduit

intermediate portion is arranged in a squirrel cage configuration.

[c15] An electric motor in accordance with Claim 10 wherein said spacer bar notched side has a plurality of fingers projecting outwardly such that said fingers mechanically couple said spacer bar to said cooling conduit.

[c16] A method for fabricating a stator frame, said method comprising:
arranging a cooling conduit into a selected configuration;
mechanically coupling a spacer bar including a notched side to the cooling conduit; and
securing the spacer bar to the cooling conduit by mechanically coupling at least one finger projecting outwardly from the spacer bar notched side to the cooling conduit.

[c17] A method in accordance with Claim 16 wherein arranging a cooling conduit comprises arranging an intermediate portion of the cooling conduit in a generally helical geometric configuration.

[c18] A method in accordance with Claim 16 wherein arranging a cooling conduit comprises arranging the cooling conduit in a generally serpentine geometric configuration.

[c19] A method in accordance with Claim 16 wherein arranging a cooling conduit comprises arranging the cooling conduit in a squirrel cage configuration.

[c20] A method in accordance with Claim 16 further comprising casting the stator frame so that the cooling conduit is at least partially embedded within the frame.

[c21] A method in accordance with Claim 20 wherein casting the stator frame comprises:
positioning the conduit within metal casting tooling; and
injecting molten metal into the tooling and around the conduit.

[c22] A method in accordance with Claim 21 wherein prior to positioning the conduit within the metal casting tooling, said method comprises embedding

the conduit at least partially in a rigid foam structure.

[c23] A method in accordance with Claim 16 wherein mechanically coupling at least one spacer bar comprises:
positioning the spacer bar notched side in contact with the cooling conduit; and
coupling the spacer bar finger to the cooling conduit.

[c24] A method in accordance with Claim 16 wherein arranging a cooling conduit comprises arranging a cooling conduit fabricated from a first material and a casting material fabricated from a second material.